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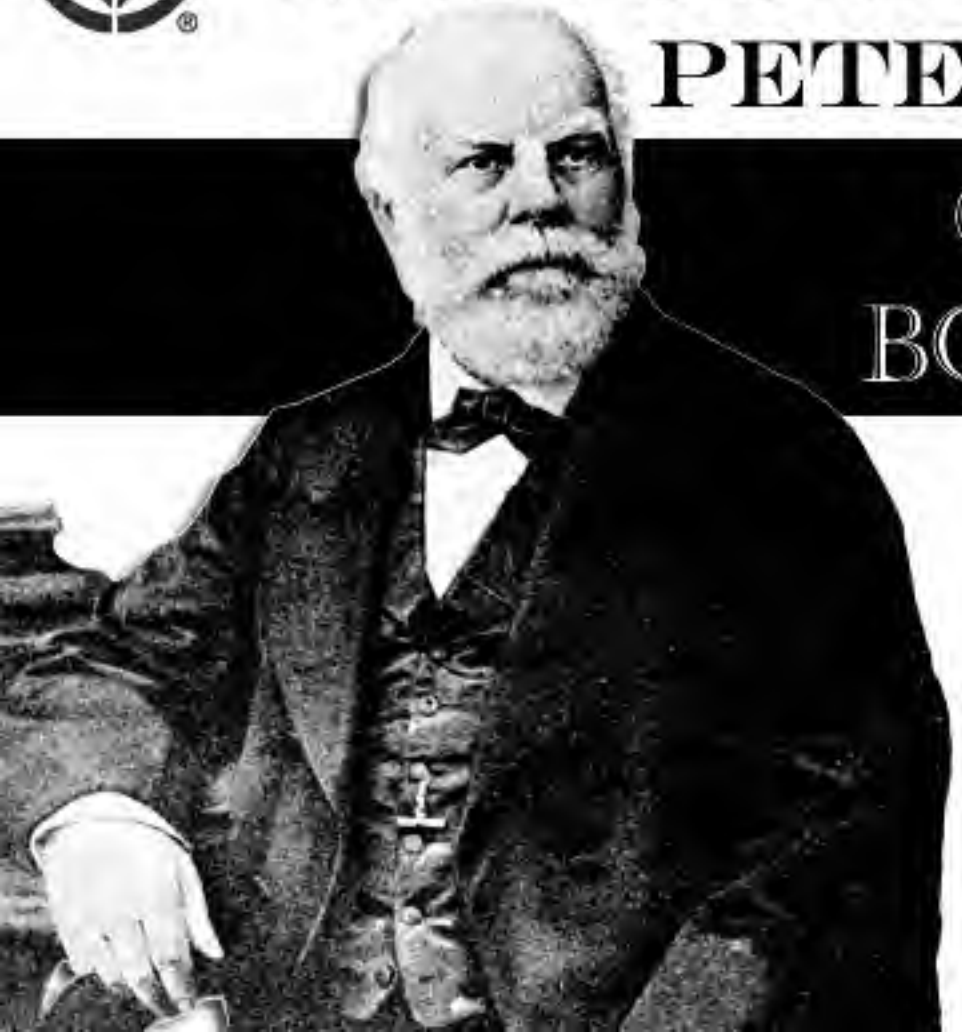

George Engelmann Botanical Notebooks

Pagination Note:
Since many of the items lack a specific page number, the page number displayed online refers to the sequentially created number each item was given upon cataloging the materials.

S. Watson writes May 13 1876.

Palmer sends from La Paz a new Ephedra allied to trifurca!

Do you know whether the common Nevada spec. is the real E. antisyphilitica of Mayer?

The original Berlandier spec. is very important and looks like the Texan plants.

13475

St. Louis, Mo.
May 17th. 1876.

Dr. Englemann;

Be kind enough to let me know, at what hour on Saturday next, I

Ephedra in London Arb. & frut. brit. IV. p. 2062

E. distachya L. p. 2063. fig. 1973 & 1974
Schk. Handb. III. t. 339

E. monostachya L. p. 2063 fig 1975. 1976.

E. altissima Desf p. 2064 fig 1977. 1978. 1979

E. fragilis Desf p. 2065

E. Americana Willd. p. 2065 fig 1980.
& p. 2597 fig 2539

E. rupestris Benth Pl Hartw p. 253 Antisana

E. humilis Wedd Walp Ann 3. p. 452 Peru

E. ~~occidentalis~~ Emory Rept p. 151 lapsus pennae pro E. Americana
= E. trifurca Torr. ibid.

E. Americana Torr Stansb. Rep. 395

FORCE OR PRESSURE OF VAPOR.

e are entered the numbers which indicate the inches of mercury of a barometer which the force of vapor of the e will sustain. The whole pressure of the atmosphere, as given under the head of "Barometer," is due, con- eight of the air and the moisture which it contains. The figures under this table indicate the separate pressure and are obtained from the records of the wet and dry-bulb thermometers by means of a table based on experiment.

RELATIVE HUMIDITY, OR FRACTION OF SATURATION.

y of water in a state of vapor which a given space can contain, depends on the temperature. When a given ıch water as it can hold at a given temperature, it is said to be saturated with vapor. If the temperature be on of the vapor will be condensed into water, but the space will still be saturated. If the temperature be ıore vapor be admitted, the space will only be partially saturated. The numbers under the head of "Relative fore denote the per-centage of saturation; full saturation being indicated by 1, and half saturation by 0.5. These ced from the corresponding forces of vapor by means of a table in the Smithsonian Collection.

[☞SEE OTHER SIDE.]

Febr 1877

Euphidra — in Herb. Engler.

320, 1590 Borland.
673 Wright (1649)
— " (1646)
1651 " (1652)
225 Lindh.
426 "
273 "
n.1 Bigelow
n.2 "
53 Gregg
1462 Wright
1463 Wright

249, 251 Parry (1874)
— Gregg ("Cantilla".)
76, 117 Anderson
110 & Watson
— Mrs. Amer.
150 Wms
112 Xantus (7th Tejon)
524, 525 Palmer (1876)

364, 365 Palmer, 1875

1464 Wright
n.4 Bigelow
n.3 "
— Mrs. Thompson
250 Parry (1874)
523½ Palmer, 1876

} "E. trifurca"

"E. antisyphilitica" + aff.

E. alatra, Sesse. — Cozcon Prov. Constantine
" " Oran
E. altissima, Desf. — Boissier Prov. Malacca
E. andina, Poepp. — Kunth
E. (?) arborea, Müll. — Müll Australia —
E. camptopoda, Mey — Hildrich Abyssinia
E. distachya, L. — Boissier Corsica

E. fra

E. Ges

E. Gra

E. Hel

E. hu

E. lon

E. mo

E. vu

"

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Ephe

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"

E. fragilis, Desf. — Griffith — Affghan.ª

E. Gerardiana — Strach. & Winterb. Himalaya

E. Graeca, Mey. — Orphanides

E. Helvetica, Mey — Rehule

E. humilis, Wedd. — Mandon 1126. And. Boliv.

E. lomatolepis, Schr. — Schrenck Balchasch

E. monostachya, L. — Bongard Wolga
" Hrb. Petrop.
" Bunge

E. vulgaris, Rich., ~~var~~ Submonostachya, Mey
— Schrenck
" " var. frustibaccata
— Hook. f. & Thomp. Himal.
" " var. Helvetica " " "

Ephedra —? Mandon 1123 And. Boliv.
" Griffith 4982 Affghanistan
" " 4979 "
" " 4983 "
" n. 2. Strach. & Winterb. Kumaon

13477

Ephedrae Americanae

E. Americana HBK & Willd Sp. Pl. 4. 860 (1805) Peru

E. Andina Poeppig in C. A. Meyer Ephed. p. 78 (1846) Chili

E. Tweediana Fisch & Mey in C. A. Meyer Ephl p. 96 tab. 5 (1846) Buenos Ayres

E. antisyphilitica C. A. Meyer Eph p. 101 (1846) cf Endl Conif 263
Berlandier 1590 from Laredo, Mex

E trifurca Torr in Emory Report (1848) p. 151
S. Watson in King's Bot. 40° par. p. 329 note (1871)

E. triandra Tul. in Mart Fl. Bras. 33-35 t. 107.

(E rupestris Benth. Pl. Hartw. 253 (1839) Quito
= E. Americana fide Parlatore)

See Endl. Conif. (1847) p. 253 –

Carrière Conif (1855) p 547

Parlatore in DC Prod 16. 2. (1868) p. 352

Emory Reconnoissance (1848) p. 151

Torrey Bot Boundary (1859) p 297. here also p. 208 notice of the 3d sp for Frontera

S Watson, King's Botany of 40th Parall. 1871
p. 328 t. 39.

Ephedra reclinata Rio Frio Texas

E ~~intermedia~~ nebrodensis ~~Frontera~~ ~~Cuervo~~

conjuncta ~~gens~~

nebrodensis / Ins
fragilis / Canar

Engineer Office, U. S. Army,

417 PINE STREET,

Saint Louis, Mo. Jany 31 1876.

Dr. Geo. Engelmann,

Dear Sir,

I was gratified with the receipt of your note of the 29th inst, enclosing drawings to be added to the 3rd plate already forwarded to the Chief of Engineers, Washington, I will state that a copy of said note, with the drawings referred to, were forwarded on the 29th to the Bureau of Engineers, with the request that your wishes might be complied with.

I am glad to learn that you have about completed the revision of your report.

Very respectfully

[illegible] J. H. Simpson
Col. Engrs. USA

Lee Watson
Kay Dolley

Gnetaceae

Ephedra antisyphilitica,

C. A. Meyer, Ephed. 101, DC. Prod. 16. 2. 357. Watson. Bot. 40th Parall. pl. 39

Var. pedunculata : dioica

fruticosa (squarrosissimis); ramis numerosissimis verticillatis fasciculatis; foliis oppositis subulatis divaricatis vagina abbreviata bis terve longioribus deciduis; amentis oppositis seu plerunque verticillatim ad ramulorum basin aggregatis; masculis breviter pedunculatis ovatis, perigonio supra squamam membranaceo-marginatam exserto, antheris biloculari-ibus sub-8; femineis brevius longiusve pedunculatis, squamis 6 basi (solum) per paria connatis ovula bina includentibus; seminibus (non plane maturis) ovatis obtuse trigonis paullo (quarta parte fere) superantibus.

Sandy and Saline deserts near Walker River western Utah; and also in other parts of Utah, near Camp Floyd on bare rocks ~~common in many parts of Utah~~.

This shrub grows usually ~~about~~ 2—3 feet high, but has occasionally been observed to attain a hight of 5 or 6 feet. The largest stems seen had a diameter of 4 inches; they divide from near the base into numerous squarrose branches. The greyish bark finally separates into ~~very~~ fine ~~almost capillary~~ fibres. The wood is nearly white, rather compact but not hard; the annual layers are not easily distinguished and apparently less than $\frac{1}{2}$ line thick. The joints in vigorous specimens are 1½ - 2 inches long, but sometimes much shorter; the flower bearing branches (always at least one year old) are rather stout, ¾ — 1 line thick. The subulate divaricate but not reflexed leaves are (from their insertion) 2½ — 3½ or 4 lines long, united at the base by a scarious membrane and then forming a sheath ¾ — 1 line in length; from the flowerbearing branches leaves and sheaths have entirely disappeared. The aments are usually crowded at the base of the numerous verticillate branches or on their lowest joints, and are interspersed with young shoots. Male and female flowers

13479A

13479B

are always separated on different stems. The staminate aments, on a naked pedunle about 1 line long, are oval 4–5 lines in length, consist of 6 or 8 or even 10 pairs of fleshy membranaceously margined scales, each one bearing in its axil (as is the character of the genus) a compressed membranaceous vagina with a transverse slit at the obtuse apex emitting the column of filaments usually bearing 8 anthers or sometimes less; the 4 lower anthers are sessile, the upper ones are born on very short stipes; they are usually 2-celled, once or twice only have I noticed a terminal 4-celled anther. Pollen grains lanceolate even after being moistened. — The pedunles of the seed-bearing aments are usually 2, but sometimes even 3 or 4 lines long; they have at base several pair of very small, rudimentary scales, and are articulated just above them, otherwise they are naked, but on very long peduncles I observe another pair of scales about the middle. The ament itself (consists always) of 3 pairs of fleshy scales, ~~or 3 vaginae as~~ united at base only, or 3 vaginae as they are commonly termed, the uppermost being by far the largest. The seeds I find almost invariably in pairs; ~~only once I have seen a single one~~; ~~they~~ they are flattened on the inside, obtusely keeled on the back, with an oval outline, and with a rather obtuse perforated point, from which like a style the elongation of the inner seed coat protrudes. The seeds (those at my disposal are not fully ripe) are rather over 3 lines long and the whole ament is about 4 lines long, the seed protruding not more than about ¼ its length beyond the innermost scales.

~~A. Andina, E. Hookeriana and a few other species have peduncled aments, but in none is the peduncle as long as in this species.~~

E. antisyphilitica, Berlandier, at least the specimens described by Prof Torrey in the Botany of

13480

the Mexican Boundary, pag 207, from above El Paso (Wright nro. 1883) have less crowded branches, leaves in twos or usually in threes, subulate from a broad base spreading or recurved, as long as their common sheath or shorter, 1/2 to at most 1 line long; aments closely sessile, not crowded, generally in pairs along the branches rarely in fours; staminate ones subglobose or short-oval, 3-4 lines long, consisting of 5 or 6 or rarely 7 pairs of floriferous scales; perigonial vagina scarcely ~~exser~~ protruding above ~~the~~ its scale; anthers 4-5 or 6. The fruit bearing ament, ~~&~~ about 4 lines long, is composed of 5 or 6 pairs of scales which are membranaceous on the margin; the seed, usually single, is accuminate and protrudes 1/3 or even 1/2 its length over the scales. It is not quite certain that this is the same as Berlandier's plant from Laredo, which is described by C. A. Meyer as having the sessile aments crowded at the base of the numerous fasciculate branches, like our E. pedunculata.

A third western species has been doublingly indicated by Prof. Torrey in Emory's Report p. 152 under the name of E. trifurca, ~~Torrey~~ ("from the Del Norte and the Gila") (see also Torrey in Stansb. Rep. p. 395). Dr Wislizenus has collected the same from Valverde, south of Santa Fe, New Mexico, in the year 1846, but also without flower or fruit. It is a stouter plant, with stricter growth erect verticillate branches, joints about 1/2 inches long leaves always in threes, subulate, very sharply pointed, strictly erect, 2 lines long, shorter than the elongated sheath (2-3 lines long) or of the same length, somewhat persistent. Wright's nro 1884 from the country above El Paso, which has been described by Torrey in the Mex. Bound. Botany p. 208, is the same plant; the aments are sessile in pairs

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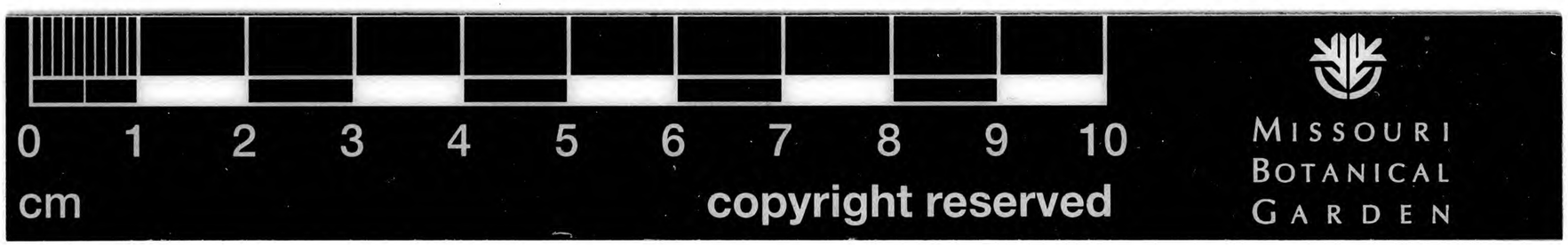
along the branches or in clusters at their base; the male aments (about 2½ lines long) are small and globose, shorter than the persistent but lacerate sheaths and leaves; the female aments have been described by ~~Prof~~ Torrey; their stiped, membranaceous, shining scales are very curious, but whether their shape is owing to a monstrosity, as suggested, must remain doubtful, as the ~~ovarium~~ ovulum seems to be perfect. Several other species of Ephedra (such as E. alata, E. tomatolepis) have also alate scales.

J. Engelmann,

13482



Ephedra DC. Prod 16.2. p. 353

Gymnotogeae

7. Ephedra vulgaris Rich. anthers sub 8, centralibus stipitatis; amentes fem. bifloris involucris 3-4 immarginatis bifidis, supremo pistillo [ovula] subaequante Variabilis!

8 E. fragilis Desf subscandens vaginis 3 raro 4 dentatis [fol. ternis v. quaternis] anthers 4-6(-6) sessilib amant ♀ 1(-2)floris, involucris 3-2, supremo apice bilobo pistillum subaequante; fr. nb rectius v. flexuosa.

9 E. altissima Desf scandens, vaginis 2-4 dentatis; amant ♂ plerique pendulato racemos anthers 2(-3-4) zonil; amant ♀ pedunculis deflexis v. patulis 1(-2)floris; involucris 3 immarginatis, inferioribus truncato-emarginatis summo apice bilobo pistillum subaequante

10. E. Alte Mey. fol 2-4 anthers 3-5 capitat; amant ♀ 1(-2)flor. 12-20 fr. nb. del involucris 2-3 infer. emarginato-bilobis, summo bilobo ovulis subbinatis, omnibus scariosa-marginatis ciliatis Fructus altus

11. E. monosperma Gmel amant ♀ oppositis, anthers 6-8 sessil, vel centr substipit amant ♀ oppos. bini pedunculati 1 fl. involucris 1-2 immarginatis bifidis, summo pistillum subaequante, fructus indicatus. - humilis, repens.

12 E. Nebrodensis Tin amant ♂ subglobosis, anthers 4-8 sessilibus vel centralis substipit. stipite communi involucelli vix superante; amant ♀ solitarii oppos. 1 flor. involucris 2-3 marginatis bifidis, supremo pistillo subbrevius. 1-1½ pedalis

13. E. procera Fisch & Mey. amant ♂ paucis sessil oppositis, anthers 5-8 sessil vel centrali vix stipit, stipite communi involucelli non s. vix excedente; amant ♀ oppositis pedunculatis superioribus, 1-flor. involucris 2-3 submarginatis bifidis, summo pistillo acuto subaequante - ovula abortiva. 4-8 ad

14 E. Conatolepis Schrenk - vaginis 2-3 fidis --- amant ♀ in apice subaggregatis 2-flor., involucris sub-4 late membranaceo-marginatis subbipartitis summo pistillo aequante subaequante

15. E. alata Decais. -- amant ♂ congestis, anthers 2-8 stipitatis amant ♀ 2-floris involucris plurimis profunde 2-partitis, laciniis late membranaceo-marginatis denticulatis - pistillo acuminato canalic acquilato 6-10 ad hyp

What to look for in Ephedra.

Leaves and their sheaths very variable — growth also variable.

♂ Exertion of involucre over scale — exertion of filamentous column — anthers sessile or stipitate, their number — form of ament — if sessile pedunculi crowded

♀ Number of vaginae (pairs of leaves), their proportion, connate or more or less divided — fleshy or membranaceous or marginated or winged & number of scales of wing

1 or 2 ovules, erect or not, obtuse acute or acuminate.

Fruit fleshy or arid erect or inclined

distinguished from those of the other Sarcoyuccas by their large size, 10-17 mm. in the longer diameter and 2-3 mm. in thickness; but other fruits from the same regions have seeds only 7-8 mm. long and 1.8-2 mm thick.

Var. β, the southern, form Mexican of this species, ~~is which it~~ and is principally distinguished by its smaller flowers, 2-3 inches wide, with ovate or lance-ovate segments, 1¼-1¾ inches long and usually more than half as wide; by their short style and the somewhat thinner, less rough, leaves, with thinner, often red brown, fibres; the panicles is sometimes pubescent; ~~The usually careful~~ Dr Gregg notes that it is very abundant in the plains and valleys about Salt Lo; his statement that it is almost incredible and is not supported otherwise, that ~~and~~ sometimes it reaches the height of 50 feet, with leaves 1-3 feet long, seeds said to be actively purgative"; Prof Thurber ~~brought~~ from Parras leaves and fruit of this species, ~~which is~~ an account of which together with a cut is found in Bartlett's Personal Narrative I, 491: a plain covered with Yuccas presents a beautiful appearance when in flower in pyramidal spikes several feet in length -- the trees 25-30 feet high and 2-3 feet in diameter, with 10 or a dozen branches --; he mentions that the fibres of the leaves are used for cordage, the trunks for palisays or they are split into slabs for the covering of huts; the tender top of the stem is roasted and eaten under the name of **quiote**, the edible fruits are called **Latiros**. A specimen of the latter I find 2 inches long, oval, with a beak of ½ inch; seeds small for the species. We learn in the above account that the inflorescence is pyramidal; the cut represents it as sessile or pedunculed, and about 3 times as long as wide.

The Californian forms are in foliage intermediate between the northern and southern extremes; a leaf collected at Monterey and distinguished by its narrowness (less than ¾ inch wide) probably indicates the ~~presence of this species~~ so high up northern limit of the species.

The caulescent fibrous-leaved Yuccas, ~~from Mexico~~ recently introduced from Mexico in European establishments, ~~may belong to varieties of this species but~~ seem distinguished by narrower and smoother leaves, some with red others with

'Ephedra altissima' Hort Bot Neapol. 868

has leaves 5–10 lines long and very often
in 3's, (as well as their axillary branches
Female)

~~The lobes~~ not twice ... ...

The ovary of the smaller flower is 15, tube 2, lobes 7–8 lines long and the exsert part of filament longer than the whole perigon; in the former the stamens are inserted a little below the base of the lobes, in the latter at the very base itself. The capsule of the latter is 1½–1¾ inches long and 7–8 lines wide; seeds 3 lines wide.

Small type rom ** §§. Tubus perianthii lobis (~~paulo~~ brevior vel ~~magis~~ aequalis) ~~fere~~ ~~aequalis~~; stamina medio tubo inserta.

italic † ~~#~~ Tubus lobis ~~paulo~~ brevior.

13 Agave Shawii, n. sp.: subacaulis; foliis perviridibus erecto-patulis ~~et~~ supra basin dilatatam vix denticulatam paulo contractis ovatis acutis spina valida late excavata acuminatis, margine corneo fusco ~~demum incomplete~~ vix solubili aculeis confertis maximis sursum curvatis vel varie flexis ~~horrido~~ ornato; scapo valido bracteis foliaceis triangularibus toto imbricato; ramis paniculae horizontalibus seu superioribus ascendentibus apice glomerulum florum subsessilium compactum foliaceo-~~imbri~~ involucratum gerentibus; ovario prismatico perigonio vix breviore, ~~staminibus medio tubo adnatis paulo exsertis~~